

Clean Version of Claims

6. The packaged food of claim 22 wherein the substrate film comprises polyvinyl alcohol.
7. The packaged food of claim 22 wherein the substrate film has an average thickness of less than about 5 mils.
8. The packaged food of claim 22 wherein the printed image is formed by applying one or more water- or solvent-based inks to the print side of the substrate film and drying the one or more inks.
9. The packaged food of claim 22 wherein the printed image is free of photoinitiator.
10. The packaged food of claim 22 wherein the printed image is formed by applying one or more radiation-curable inks to the print side of the substrate film and curing the one or more inks.
11. The packaged food of claim 18 wherein the package enclosing the food product comprises a vertical form-fill-sealed package.
12. The packaged food of claim 18 wherein the package enclosing the food product includes a lid comprising the coated, printed film.
13. The packaged food of claim 18 wherein the radiation-cured varnish of the coated, printed film has an average gloss of at least about 80% measured in accordance with ASTM D 2457 (60° angle).
14. The packaged food of claim 22 wherein the coated, printed film has an average gloss of at least about 80% measured in accordance with ASTM D 2457 (60° angle), has a crinkle test rating

of at least 4, and can withstand at least 150 double rubs under the NPAC rub test without break in the printed image.

15. The packaged food of claim 22 wherein the average thickness of the radiation-cured varnish of the coated, printed film is less than about 5 micrometers.

18. A packaged food product comprising:

a food product;

a package enclosing the food product, the package comprising a coated, printed film comprising:

a substrate film comprising one or more thermoplastic materials, the substrate film having a print side and an opposing food side and an average thickness of less than about 15 mils;

an image printed on the print side of the substrate film;

a radiation-cured varnish over the printed image, the radiation-cured varnish formed by:

coating the printed image with a radiation-curable varnish comprising one or more polymerizable reactants and optionally one or more photoinitiators; and

subsequently exposing the radiation-curable varnish to radiation sufficient to polymerize at least 90 weight % of the polymerizable reactants;

wherein the package comprises one or more heat-sealed regions and at least a portion of the radiation-cured varnish extends into the heat-sealed region; and

wherein the weight of the radiation-cured varnish per unit area of substrate film in the portion of the radiation-cured varnish extending into the heat-sealed region is at least substantially equal to the weight of radiation-cured varnish per unit area of substrate film outside of the heat-sealed region.

19. The packaged food of claim 18 wherein:

at least a portion of the printed image extends into the heat-sealed region; and
the weight of printed image per unit area of substrate film of the portion of the printed image extending into the heat-sealed region is at least substantially equal to the weight of printed image per unit area of substrate film outside of the heat-sealed region.

20. The packaged food of claim 18 wherein the gloss of the coated, printed film in the heat-sealed regions is at least substantially equal to the gloss of the coated, printed film outside of the heat-sealed regions.

21. The packaged food of claim 18 wherein the coated, printed film is capable of being exposed to 60 psig of contact pressure between the radiation-cured varnish and an aluminum foil for 2 seconds at a temperature of at least 250°F with less than 5 weight % of the printed image being transferred to the foil.

22. A packaged food product comprising:

a food product;

a package enclosing the food product, the package comprising a coated, printed film comprising:

a substrate film comprising one or more thermoplastic materials, the substrate film having a print side, an opposing food side, and an average thickness of less than about 15 mils;

an image printed on the print side of the substrate film;

a radiation-cured varnish over the printed image, the radiation-cured varnish formed by:

coating the printed image with a radiation-curable varnish comprising one or more polymerizable reactants; and

subsequently exposing the radiation-curable varnish to an electron-beam radiation source having an energy of less than 100 keV in an amount sufficient to polymerize at least 90 weight % of the polymerizable reactants.

23. The packaged food of claim 22 wherein the radiation-cured varnish is formed by exposing the radiation-curable varnish to an electron beam radiation source having an energy of less than about 75 keV.

37. The packaged food of claim 22 wherein the substrate film comprises highly crystalline polyamide.

38. The packaged food of claim 22 wherein the substrate film comprises one or more of the polymers selected from the group consisting of acrylonitrile-butadiene copolymer, isobutylene-isoprene copolymer, and polyacrylonitrile.

39. The packaged food of claim 22 wherein the substrate film comprises one or more of the polymers selected from the group consisting of highly crystalline polypropylene and highly crystalline polyethylene.

40. The packaged food of claim 22 wherein the substrate film comprises polyvinylidene chloride.

41. The packaged food of claim 22 wherein the substrate film comprises ethylene/vinyl alcohol copolymer.